Understanding Plug-in Test Suites from an Integration Perspective

<u>Michaela Greiler</u>, Arie van Deursen Software Engineering Research Group Delft University of Technology

Understanding Plug-in Test Suites

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Need more Information?

Which Information?













Coding standards, naming conventions.

Explanation and Motivation.

"Tests are also like other parts of code. Sometimes people give bad names to their methods and variables. Then it is hard to understand."



"What one specific test does, that's quite easy to understand. What's difficult is to see where the blank spots on the map are."



Challenges keeping an Overview:

"It is difficult. You have to read it all. If you skip one test, you do not know one part of the system."

Test Organization and Structure.

Nested Test Suites.



"We realized: either we work on a particular point, and we run only one test case, or we run all of them.

We worry very often about not being able to run the test suite in a more fine-grained way.."

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Which plug-ins are tested by which testcomponent?

How are the plug-in extensions and services tested?

How are the plug-ins extending each other?

Which extensions are used during the tests?

Manual Inspection!





5 Architectural View

Plug-in Modularization View	Test-Suite Modularization View	Extension Initialization View	Extension Usage View	Service Usage View
Plug-in Level	Test Case Level	Extension Level	Method Level	Method Level
Plug-in A uses Plug-in B	Plug-in A is tested by test case <i>†</i> of Plug-in B	Plug-in A loads extension C of Plug-in B	Plug-in A invokes method <i>m</i> of extension C in plug-in B	Plug-in A invokes method <i>m</i> of service S in plug-in B

Ingredients: Data Behind



Recipe: Reconstructing The Views

Recipe: Reconstructing the Extension Usage View





ETSE: Eclipse Test Suite Explorer



Empirical Evaluation

Case Study Set-Up







27 plug-ins 11 test-components 2 test suites 200,000 LOCs 30,000 LOCs tests 5 main plug-ins 2 test components 4 test suites 100,000 LOCs 14,000 lines tests

3 main plug-ins 1 test component 2 test suites 8,500 LOCs

3,400 lines tests

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Understanding Plug-in Test Suites from an Extensibility Perspective

Michaela Greiler, Hans-Gerhard Gross, Arie van Deursen Working Conference on Reverse Engineering (WCRE), October 13-17 2010, Boston, USA Download: <u>PDF</u>

<u>Abstract:</u>

Plug-in architectures enable developers to build extensible software products. Such products plug-ins, and their functionality can be enriched by adding or configuring plug-ins. The plats of multiple plug-ins, and offer dedicated points through which their functionality can known example of such an architecture is Eclipse, best known for its use to create a series.









ETSE View 🔀

Configuration Plug-in Modularization View Extension Initialization View Extension Usage View

Summary

Extensions during test run - in total: 32 - method invocation: 15

17

- in total: 173

Test methods involved in Extension usage

- only initialized:
- for selection: 4

Used Extensions

-3	Extension	Extension Point	Usage Type
1	org.eclipse.mylyn.context.ui	org.edipse.ui.viewActions	Method invocation
2	org.eclipse.mylyn.context.ui	org.edipse.mylyn.tasks.ui.editors	Method invocation
3	org.eclipse.mylyn.ide.ui	org.edipse.ui.viewActions	Method invocation
4	org.edipse.mylyn.java.ui	org.edipse.ui.viewActions	Method invocation
5	org.eclipse.mylyn.tasks.ui	org.edipse.mylyn.tasks.ui.presentations	Method invocation
6	org.eclipse.mylyn.tasks.ui	org.edipse.ui.views	Method invocation
7	org.eclipse.mylyn.tasks.ui	org.edipse.ui.actionSets	Method invocation
8	org.eclipse.mylyn.tasks.ui	org.edipse.ui.editors	Method invocation
9	org.eclipse.mylyn.tasks.ui	org.eclipse.mylyn.tasks.ui.editors	Method invocation
10	org.eclipse.mylyn.tasks.ui	org.eclipse.mylyn.tasks.ui.repositories	Method invocation
11	org.eclipse.mylyn.tasks.ui	org.eclipse.mylyn.tasks.ui.projectLinkProviders	Method invocation
12	org.eclipse.mylyn.tasks.ui	org.edipse.ui.exportWizards	Method invocation
13	org.eclipse.mylyn.tasks.ui	org.edipse.ui.importWizards	Method invocation

Involved Test Methods

24

	Test Method
1	boolean org.eclipse.mylyn.internal.tasks.ui.util.TaskPropertyTester.test(Object, String, Object[], Object)
2	void org.eclipse.mylyn.tasks.tests.TaskDataExportTest.testExportAllToZip()
3	void org.eclipse.mylyn.tasks.tests.TaskDataExportTest.testSnapshotWithContext()
4	void org.edipse.mylyn.tasks.tests.TaskListDropAdapterTest.testUrlDrop()

When and how have the extensions been used?

Which extensions are used during the tests?



Want to use ETSE in your project?



Contact us!

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arie.vandeursen@tudelft.nl

Update site:

http://swerl.tudelft.nl/etse/ETSE_UpdateSite/site.xml